

Western Digital Technologies, Inc.
Serial Number: 09/676,405

Patent
Docket: K35A0458

In re Application of: Butler
Serial No.: 09/676,405
Filed: 09/29/00
Title: A DISK DRIVE COMPRISING A COVER
SHAPED TO IMPROVE RADIAL AND
AXIAL SHROUDING




Group Art Unit: 2651
Examiner: Castro, A. A.

AFFIDAVIT OF JIM BOECKNER

THE COMMISSIONER FOR PATENTS
ALEXANDRIA, VA 22313

1. I, Jim Boeckner, was employed by Moulding Industries, a manufacturing company with headquarters in Singapore, from 1997 to 2003.
2. Long prior to October 12, 1999, Moulding Industries received an email from Walter W. Butler, an employee of Western Digital, including engineering drawings for a new type of cover for use with disk drives. A copy of the email received from Walter W. Butler, including copies of the engineering drawings, are shown in Exhibit A. The engineering drawings show integrated shrouding elements that would extend from the inner surface of the cover into the base of a disk drive and that would substantially envelop the outer periphery of the disk, including at least part of the outer periphery coextensive with the actuator arm when the actuator arm is positioned adjacent to the outer periphery of the disk, to provide radial shrouding of the disk.
3. Long prior to October 12, 1999, in connection with my employment at Moulding Industries, I manufactured a prototype of the cover shown in the engineering drawings of Exhibit A. A photograph of the actual, finished prototype cover is shown in Exhibit B.

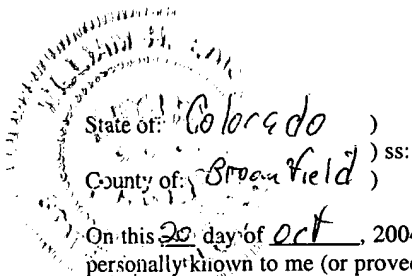
4. The dates have been removed from the copies of the documents in the attached Exhibits, but are visible on the originals.



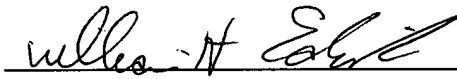
Jim Boeckner

10/20/04

Date

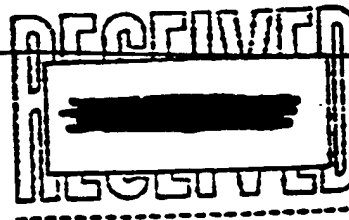


On this 20 day of oct, 2004, before me, Jim Boeckner personally appeared Jim Boeckner, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacit(ies)y, and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person acted, executed the instrument.



(Notary Public)
NCE-8807

Walter W Butler, 01:41 PM [REDACTED], Proposed 3.5" WD Cover



Return-Path: <walter.w.butler@wdc.com>
From: Walter W Butler <walter.w.butler@wdc.com>
To: "'tooling@cyberway.com.sg'" <tooling@cyberway.com.sg>
Subject: Proposed 3.5" WD Cover
Date: [REDACTED] 13:41:30 -0700

Hello Ong Teck Kuen,

My name is Walt Butler with WDSJ, and have been trying to send a 3D solid design file to David Chua for about 3 days.

We are looking at the possibility of using a insert molded laminate cover on 3.5" drives (high volume). The first possibility would be on Flagstaff (next summer in volume), and definately on Alpine (following winter for volume). The attached file is in VDS solid designer. This is a first pass design, and what we are looking for is vendor feedback. What can be done to help out with manufacturability.

The cover is composed of laminate stamping (either .027" or .030" thick), and 10% glass filled polycarbonate or ABS, and for the spindle motor attachment a 3M whirl damper.

As for the stamper either Oaktech or Seksun would be a good choice. Edmund Mok of Oaktech was here this week, and has been informed of this new project. If possible, lets try for a phone conference on your Tuesday morning @ 9:00am; let's have you please call me at (408) 363-5504

Best Regards,

Walt

Attachment Converted: "C:\EUDORA\ATTACH\cov_wwc.pkg"

cc: Chris - FI
David Chua
Serena Wang
TC Woo
Johnny Heng
Robin Wan
Chia Ming Ghee

} MI

FROM: SIM BOKKARR

[REDACTED]

EXHIBIT A

FIG 108ED

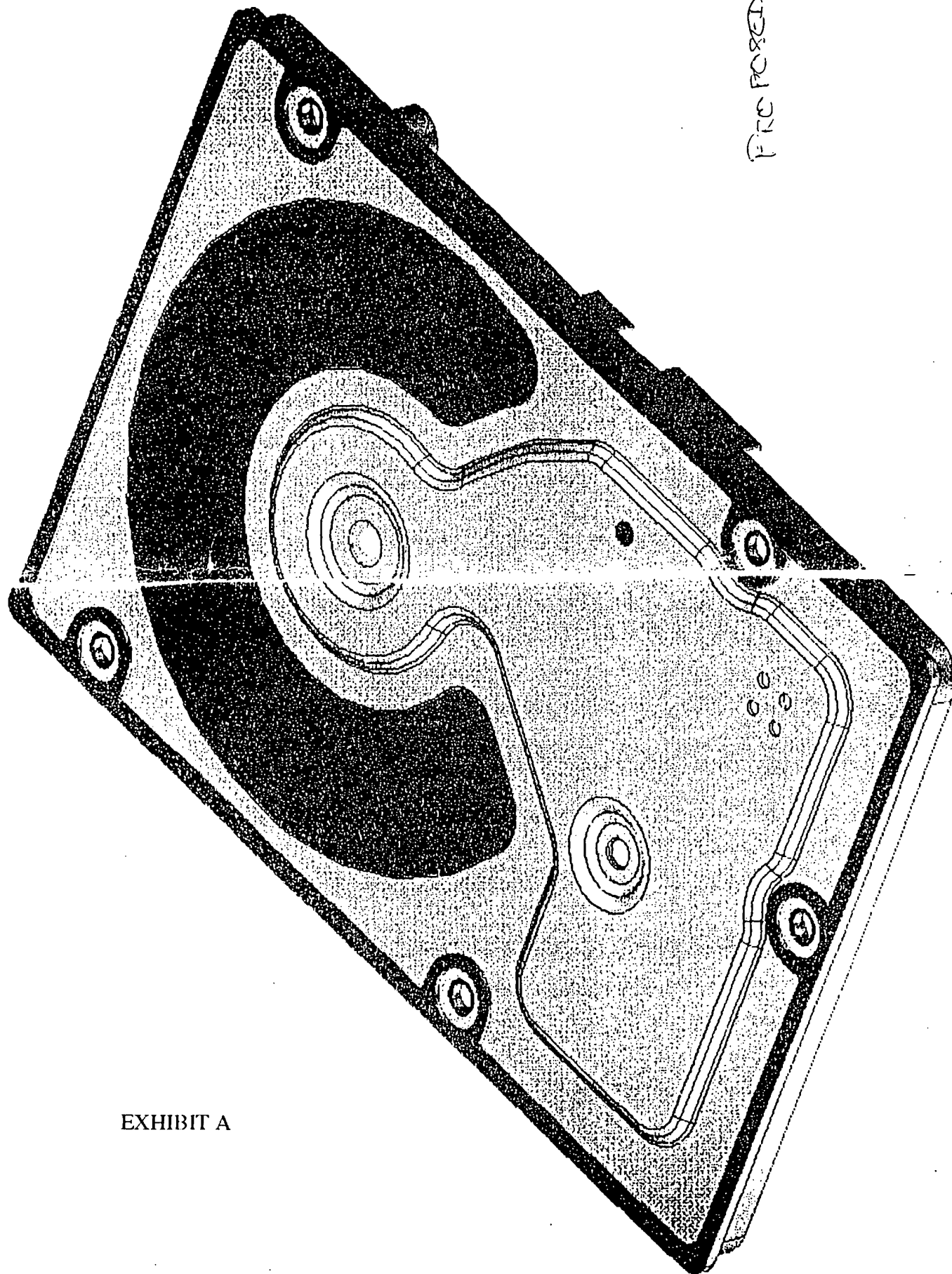


EXHIBIT A

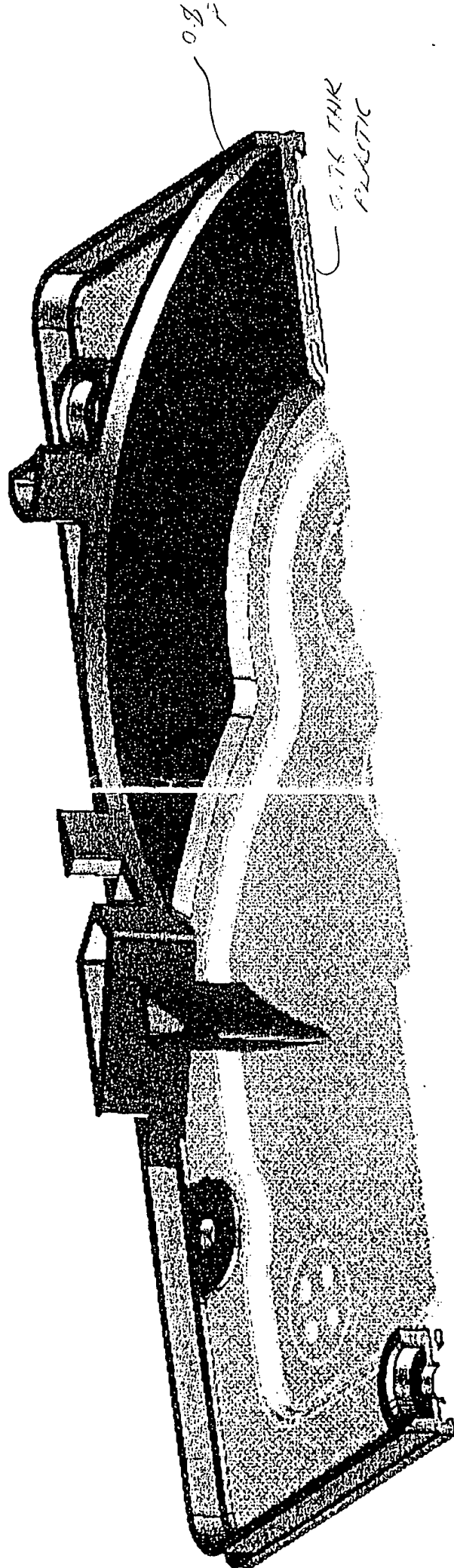


EXHIBIT A

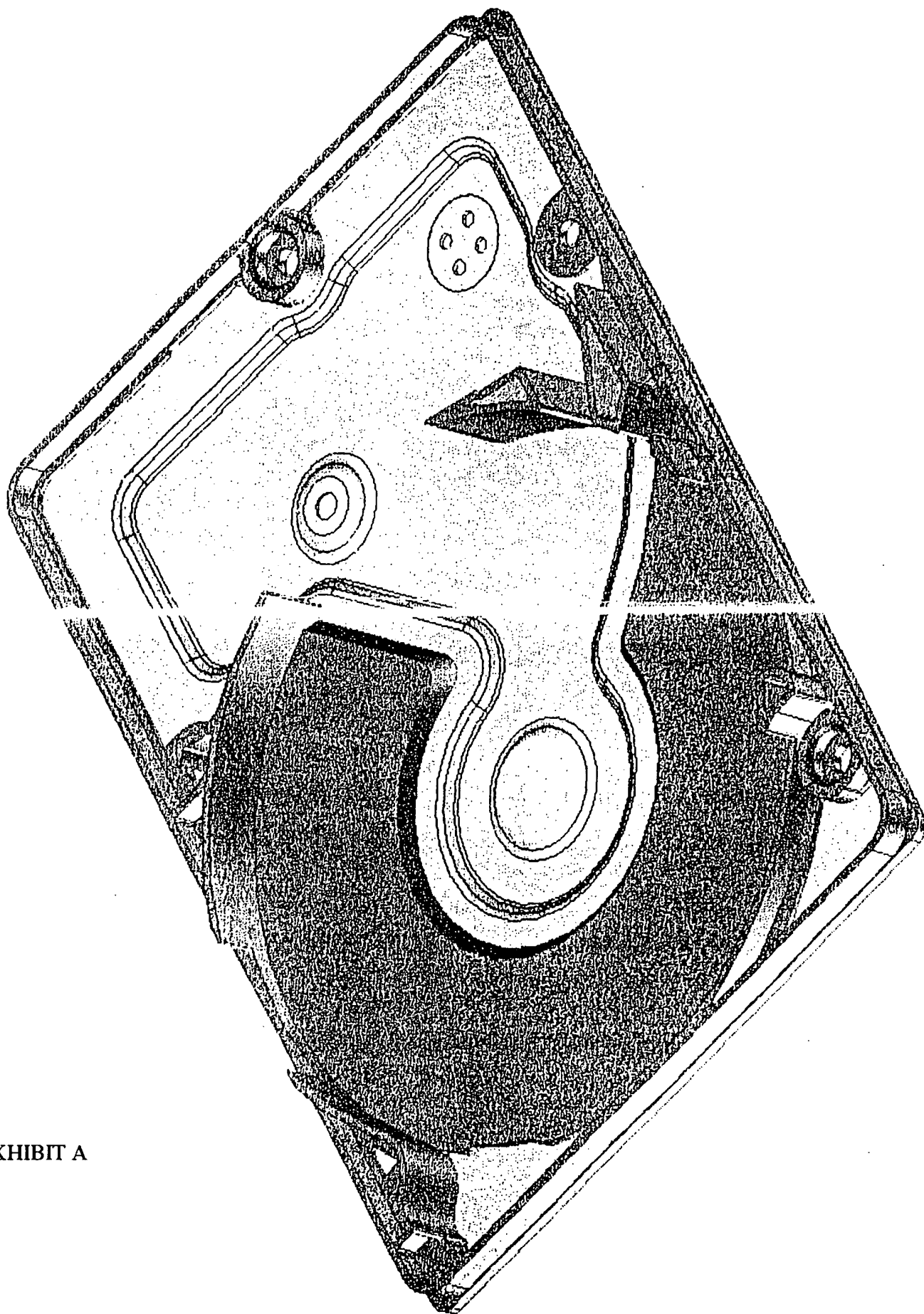


EXHIBIT A

EXHIBIT A

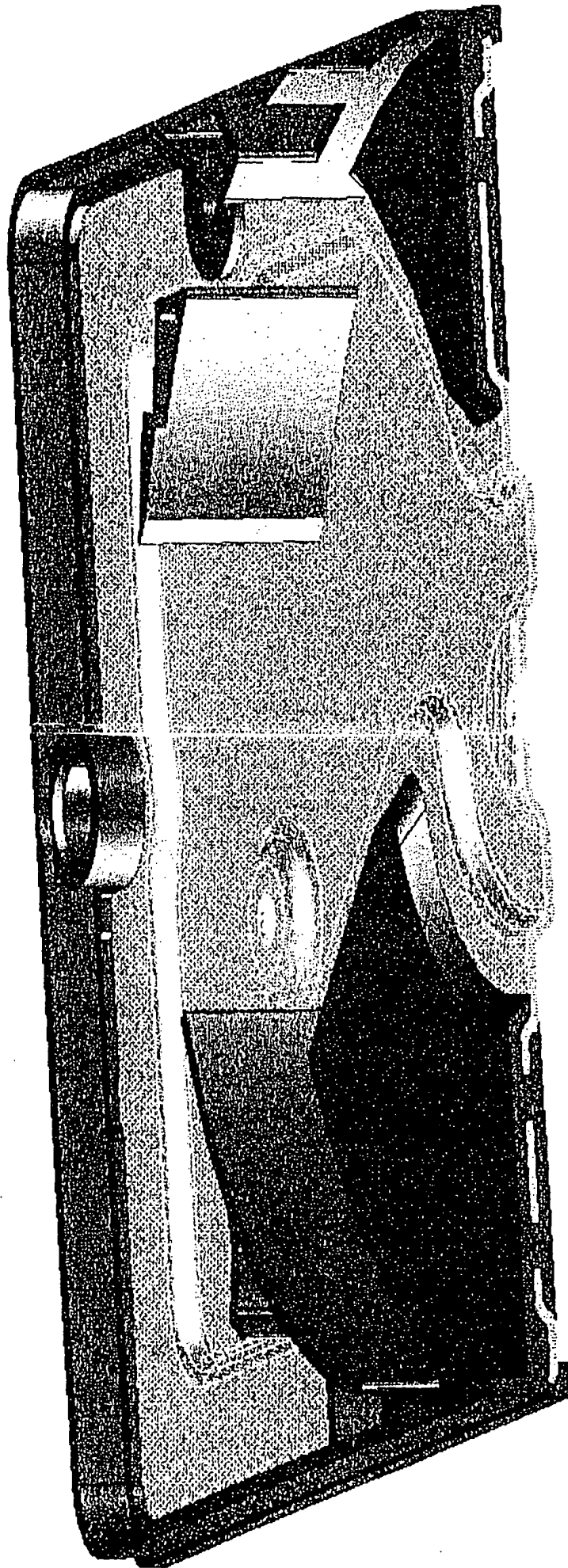
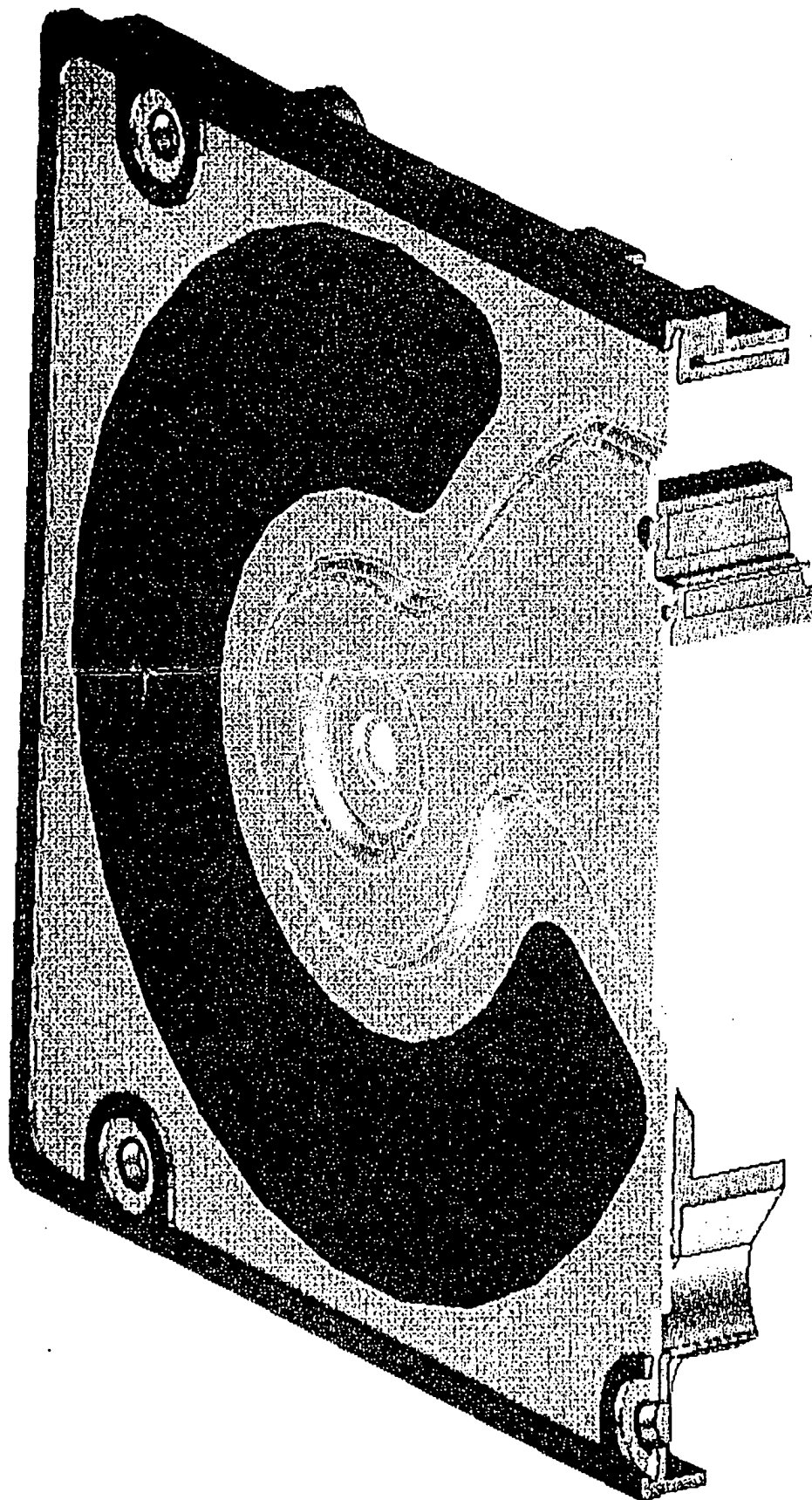
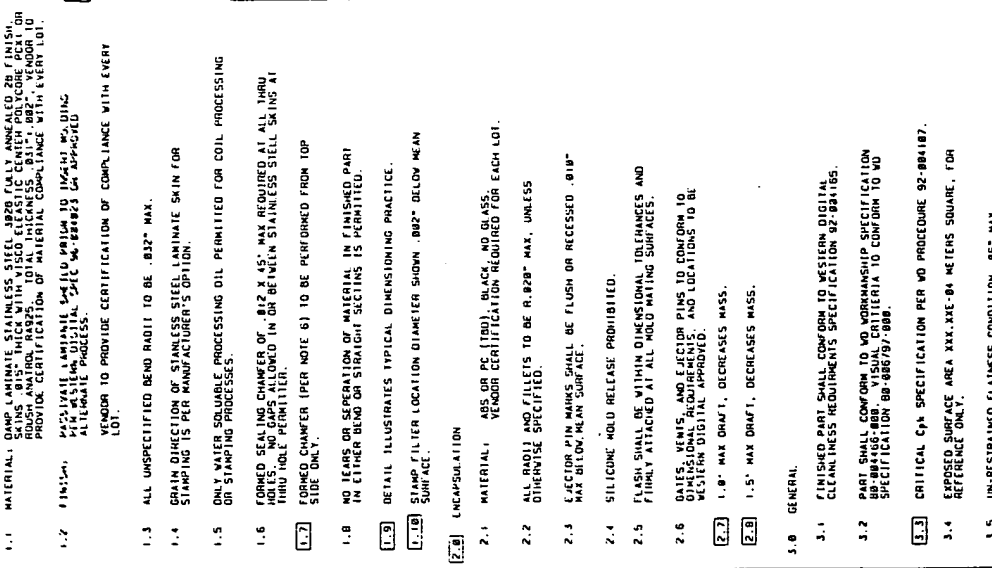


EXHIBIT A



2021



5.0	SHIELD	CLAMP LAMINATE, STAINLESS STEEL, 3020 FULLY ANNEALED, 2B FINISH, SKINS .015" THICK WITH VISCO ELASTIC CLITCH POLYURETHANE COATING. PROVIDE CERTIFICATION OF MATERIAL COMPLIANCE WITH EVERY LOT.
5.1	MATERIAL	CLAMP LAMINATE, STAINLESS STEEL, 3020 FULLY ANNEALED, 2B FINISH, SKINS .015" THICK WITH VISCO ELASTIC CLITCH POLYURETHANE COATING. PROVIDE CERTIFICATION OF MATERIAL COMPLIANCE WITH EVERY LOT.
5.2	FINISH	CLAMP LAMINATE, STAINLESS STEEL, 3020 FULLY ANNEALED, 2B FINISH, SKINS .015" THICK WITH VISCO ELASTIC CLITCH POLYURETHANE COATING. PROVIDE CERTIFICATION OF COMPLIANCE WITH EVERY LOT.

- 1.3 ALL UNSPECIFIED BEND RADI TO BE .032" MAX.
- 1.4 GRAIN DIRECTION OF STAINLESS STEEL LAMINATE SKIN FOR STAMPING IS PER MANUFACTURER'S OPTION.
- 1.5 ONLY WATER SOLUBLE PROCESSING OIL PERMITTED FOR COIL PROCESSING OR STAMPING PROCESSES

1.6 FORMED SEALING CHAMFER OF .012 X 45° MAX REQUIRED AT ALL THRU HOLES. NO GAPS ALLOWED IN OR BETWEEN STAINLESS STEEL SKINS AT THRU HOLE PERMITTER.

1.7 FORMED CHAMFER (PER NOTE 6) TO BE PERFORMED FROM TOP SIDE ONLY.

1.8 NO TEARS OR SEPERATION OF MATERIAL IN FINISHED PART IN EITHER BEND OR STRAIGHT SECTIONS IS PERMITTED.

1.9 DETAIL ILLUSTRATES TYPICAL DIMENSIONING PRACTICE.

1.10 STAMP FILTER LOCATION DIAMETER SHOWN .002" BELOW MEAN SURFACE.

[2.0] LNCAPSULATION

2.1 MATERIAL: ABS OR PC (TOD), BLACK, NO GLASS.
VENDOR CERTIFICATION REQUIRED FOR EACH LOT.

2.2 ALL RADII AND FILLETS TO BE R.928" MAX, UNLESS OTHERWISE SPECIFIED.

2.3 EJECTOR PIN MARKS SHALL BE FLUSH OR RECESSED .010" MAX BELOW MEAN SURFACE.

2.4 SILICONE MOLD RELEASE PROHIBITED.

2.5 FLASH SHALL BE WITHIN DIMENSIONAL TOLERANCES AND FIRMLY ATTACHED AT ALL MOLD MATING SURFACES.

2.6 DATES, VENIS, AND EJECTOR PINS TO CONFORM TO DIMENSIONAL REQUIREMENTS, AND LOCATIONS TO BE

2.7 1.0" MAX DRAFT, DECREASES MASS.

2.8 1.5' MAX DRAFT, DECREASES MASS.

S. O. GENERAL.

J.1 FINISHED PART SHALL CONFORM TO WESTERN DIGITAL CLEANLINESS REQUIREMENTS SPECIFICATION 92-934165.

J.2 PART SHALL CONFORM TO WD WORKMANSHIP SPECIFICATION 88-88466-888. VISUAL CRITERIA TO CONFORM TO WD SPECIFICATION 88-68679/-888.

3.3 CRITICAL C_{pk} SPECIFICATION PER WD PROFSOURCE 92-004107.

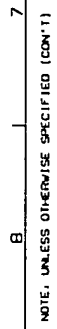
3.4 EXPOSED SURFACE AREA XXX.XXE-04 METERS SQUARE, FOR REFERENCE ONLY.

3.5 UN-RESTRAINED FLAINESS CONDITION .95" MAX.

3.6 FINISHED PART MUST PASS UL1439 STANDARD 108" ALL SIDE SURFACES.

3.7 PART MUST MEET WD OUTGASSING SPECIFICATION 95-081022.

[illegible]

[illegible]

3.13 ALL DIMENSIONS AND TOLERANCES APPLY WHEN PART IS IN CONSTRAINED CONDITION BY DATUMS A, B, & C AS DESCRIBED IN NOTE 3.10.

EXHIBIT B

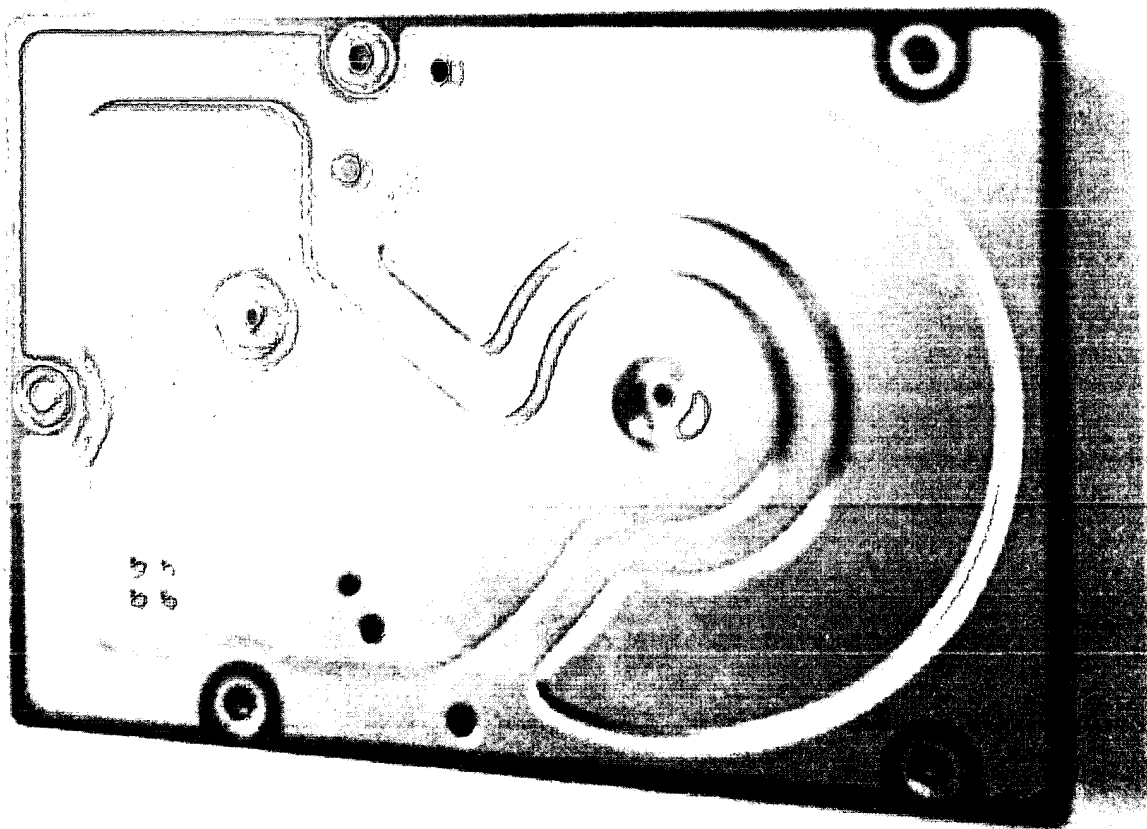
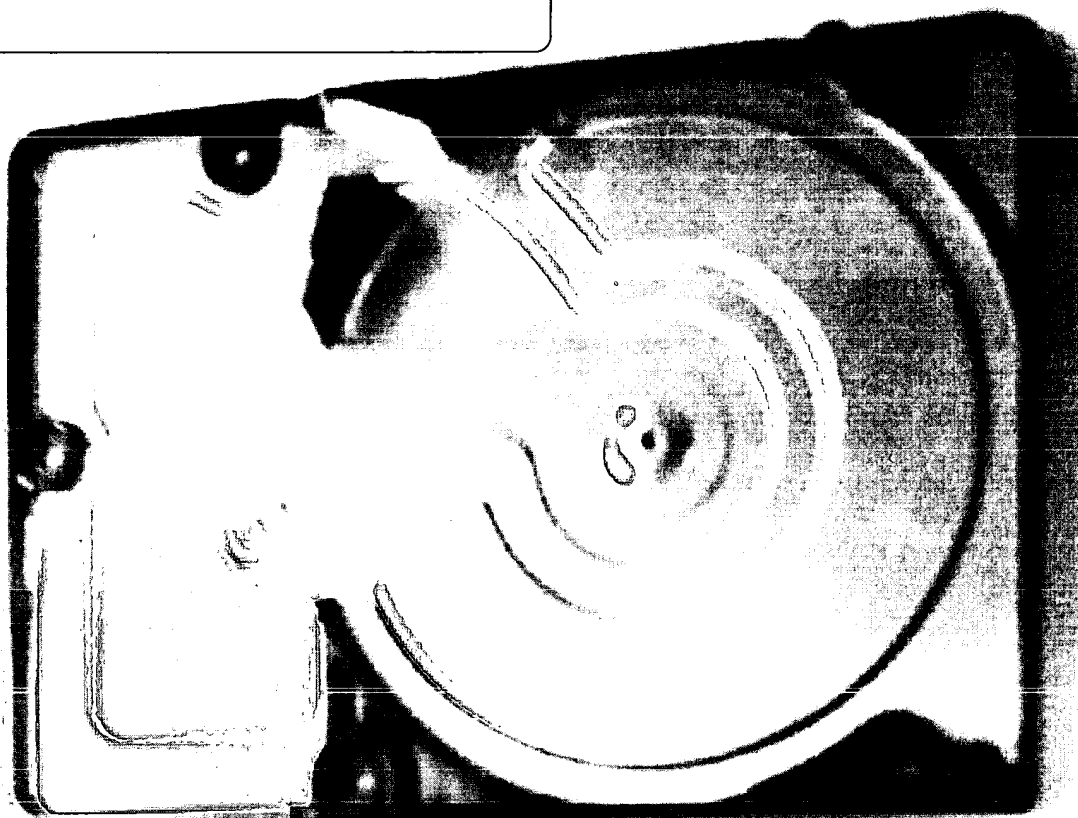


EXHIBIT B

